Aug. 13th 1888.

Section of Cambrian Rocks on the line of Manuels Brook 1¼ miles North of Topsail Head Conception Bay. Nfld.

At the bridge Crossing Manuels Brook, on the road leading from Topsail to Manuels Station, the Massive beds of Salicious and Graisdie Rock referred to the Huronian by Alex. Murray, have a dans dips to the East and-Resting unconformably upon these beds and dipping to the East and at an angle of 45° Above this is a rather Coarse massive bedded Conglomerate, formed of rounded Pebbles and Boulders derived from

the Older rock. The outcrop at Ohio Point is siliceous, following along to the north on the line of Coal at the Conglomerate is seen in local small outcrops by the R. R. track. The bed of the road is laid out nearly on the line of Coal the Conglomerate and the superficial Argillaceous shales. Towards the latter End of the deposition of the Conglomerate a Calcareous material was intermingled with the Argillaceous Beating of the Conglomerate, and in places predominated to such an extent as to form irregular masses of limestone resting on and among boulders and the finer

Material of the Conglomerate
In the upper Arenaceous
limestone that decomposes
into a reddish bottom
rock: From a pocket of
this rock, resting in a
hollow in the Conglomerate
the following species of
fossils were collected —

In the upper reddish
Colored limestone, resting
directly on a fine pebbly
bed of the Conglomerate

Note

On Manual Brook Section
1½ mi. West of Manual
Brook a quarry on West side
of R R track shows several
beds of reddish, arenaceous
limestone, alternating with
shale similar to that of Big Snowy
Shale composed of fossil
shell debris to a reddish
brown rotten stone. There
is about 6 ft of thinner
bedded shale, then quarry
with a strike N. 40° E.
Dip - 12° N.

Fossils —

Rutorgina Labradorica
Obolella like O. Gemma -
Hesperithelus - ?
Adenellus - undistinguishable from
O. Tompsoni —
Agnostus Iowensis —
Ptychoparea - 2 species.

Overlying the limestone
this is an exposure of
fine shale - in which
fragments of Olenellus
are found -
Weight 100 to 200 dark red-
ish colored
shale occur, beside
the public road from
which were observed -
All having the same
dip & strike as the
limestone in the quarry.

Manuels' Rise.

Section of 1888 by C.D. & W.

The lower portion of this section is largely concealed for about 100 feet above the basal conglomerate. These beds are to be seen in various railway cuts for two miles as green & reddish-purple shales - finish & greenish earthy & nodular lime-stones. Just west of the landing platform at Manuels station the green shales rests in a hollow of the trap rock, that appears to have been ejected along the contact of the Cambrian & pre-Cam-

M & R;

brian while the limestone
of the Hyalithes zone
stage were being
consolidated immediately
after this deposition
a short distance west
near the track the lime-
was undisturbed while
in the track blocks of it
occur almost unaltered
& on the track beds of
green shale occur filled
with fragments of
Obolella Briggsi
agrulaz ? etc.

The band of earthy
fucoidan limestone
above the green shale
is filled with frag-
ments of trilobites &
great numbers of Obolella
atlantica. Below the
latter lm- the reddish-

M.R. 3

Purple shale is in
place very fossiliferous
Abrellus braggi —
Agraulos —— etc.

an one point the
Hyalithes princeps
Lm — with Helmerá
bella. occured as a
thin layer directly
on ~~the~~ a massive
bed of conglomerate.
all of the conditions
go to prove that the
sea bed was very
unquiet that and
general conclusion
can be drawn by
~~B~~ the absence or
presence of beds, or
to a general un-
conformity at the

M. R. 4.

Base of the Cambria-
an one of the points it may
be the Smith Point-
Hyalither sandstone lay-
ers on the caol-
t a short distance
away a bed of shale
50 feet or
below that limestone.
Ten miles away at
Red Rock Point the
carg Lomerate is about
the same reddish-
purple shales ~~ness~~ nests
of a band of fine
grained quartzite + there
is a succession of
shales & limestone for
two hundred feet
above. A massive
bed of ~~lime~~ - 170 feet
above the lower lime-
apparently representing
the Smith Point lime.

Base of Trinity | Cambrian in Bay Area — Newf.

Taking the massive bed of Hyolithes limestone as the datum line the sections showing the following thickness —

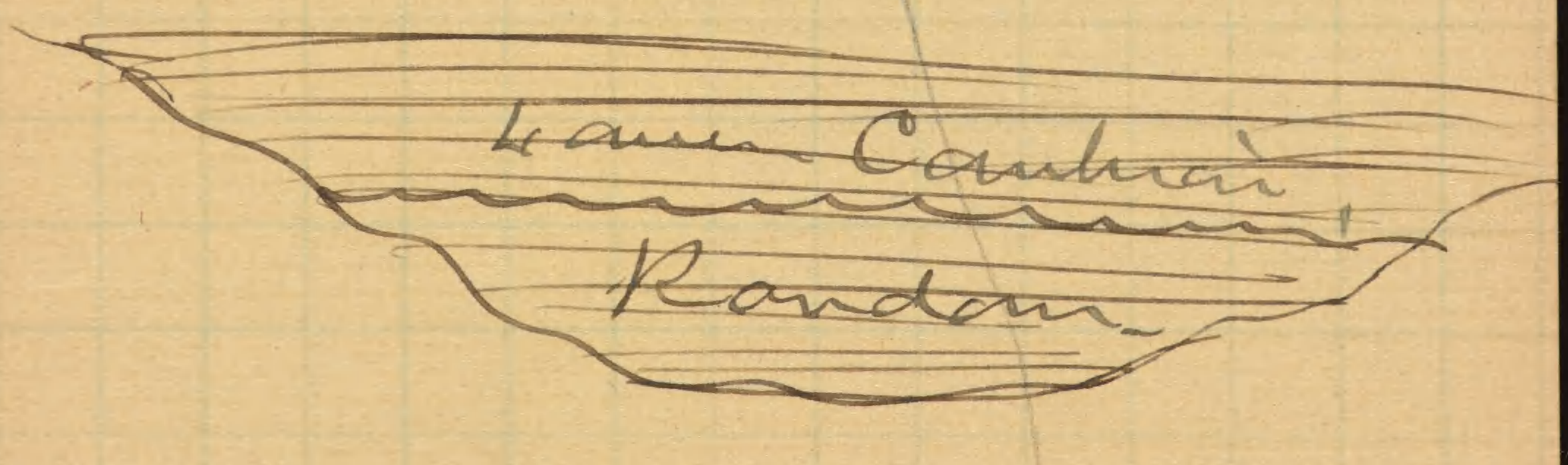
Smith Sound,	(No base)		444 ft
Random "	(True Base)		976 —
Hearts Delight ("	")		155 —
Spread Eagle Point	(Est)		100.

Conception Bay.

Manuels Brook.

These sections show the overlap of the Cambrian on the Algonkian shore

line. In the deep
Algonkian bays the
sediments are thick
& rest comfortably on
a great mass of Avalon
(Random) rocks. The
Avalon rocks having
been slightly eroded
prior to the deposition
of the Cambrian about
Trinity Bay the Cambrian
rests on the Random
series or far as known.
In Conception Bay
Manuels & restonthe
Hiranian or Laurentian
gneiss.



Point Aphrite Hill the lower portion of the section is exposed, the ~~base of the~~ resting on the Rondam limestone - The Tryolithes here contains Calceolaides Fy - Fragments of trilobites including Olenellus -

Landam land

Lechàs

Abenis

Etchemican (Cauen Canhin)

Randam (Algonkian)

June 10/99

Randam Island.

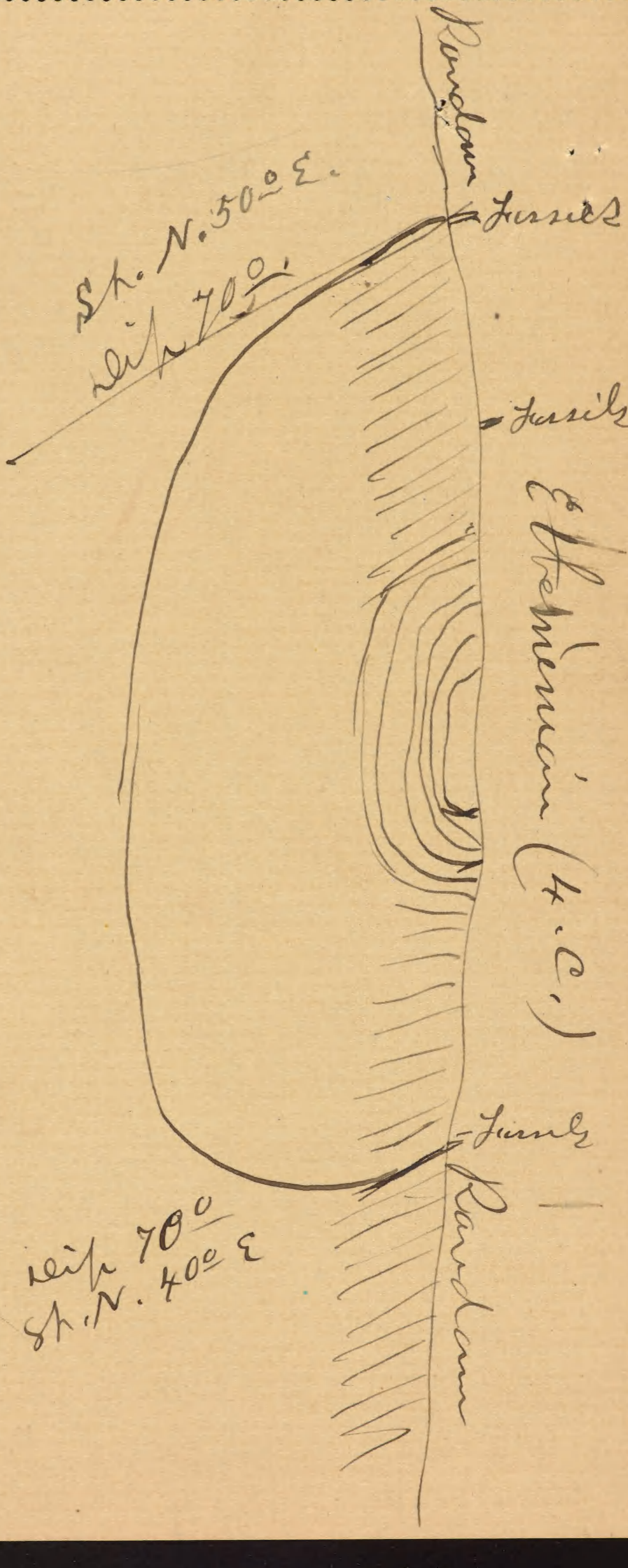
At Weston Point - Randam Island the Hyolithes limestone is well shown. The strata are nearly vertical & cut by dykes of green-stone; to the N.W. the section is disturbed & broken by "trap" dykes nearly to the Paradoxides davisi bed - above this the dip is more regular & to the Olenus Zone 35° to 25° N.W. The Olenus ? was found this about 5 or 6 feet of dark shales - above this is nearly 100 feet of shales & interbedded sandstones much like the lower

R.S. 2

portion of the great
Belle ✝ Kelleys island
section of Conception
bay,

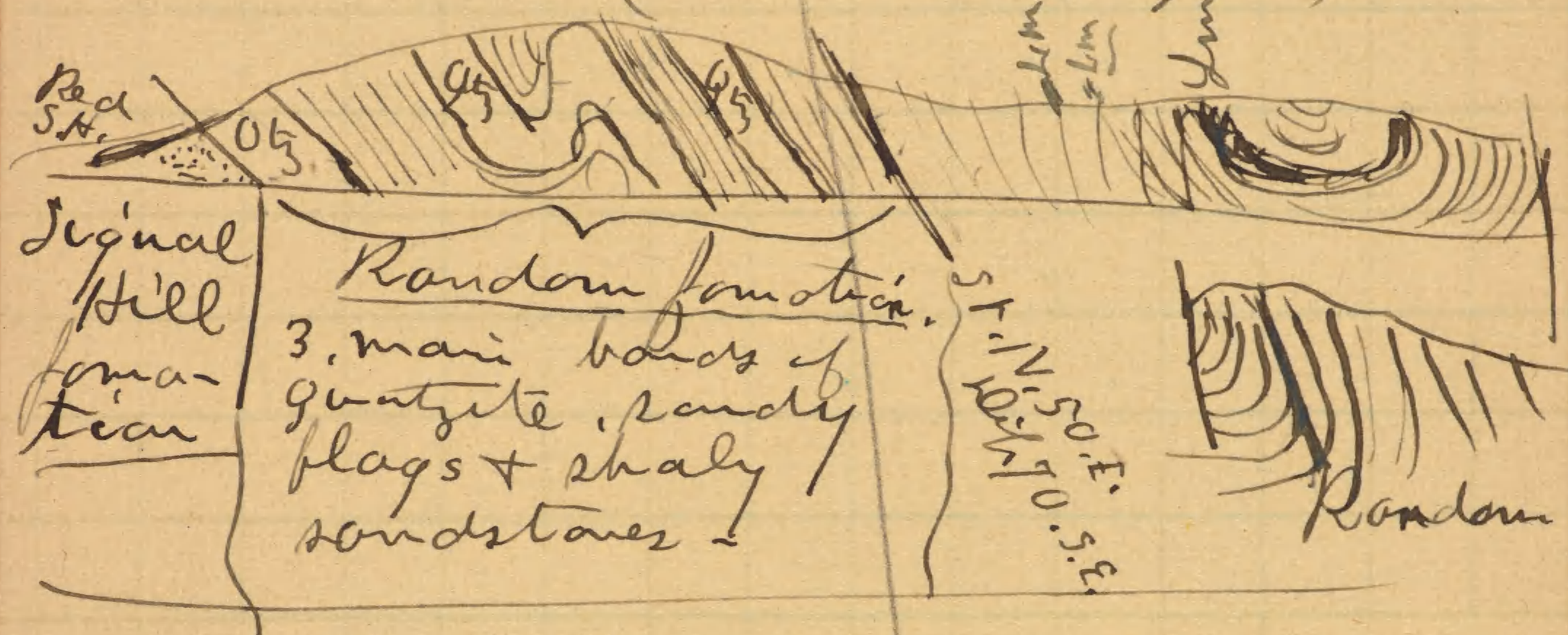
Hickman Harbor. Jones Harbor.

on the N.W. head of
Hickman Harbor the
reddish sandstones-white
& dusty gray quatzites
occur in bands, the
general dip being
to the eastward. On
the Hickman Harbor
Point the Signal Hill
Conglomerate is very
finely shown. Strike
N. 40° E dip 68° E the section
along shore to the S.E. is
clear cut- It consists
of white quatziter- &
reddish sandstones in


Strike N. 50° E.
dip 70° E.
Fossils
Ehrenburg (4. C.)
Fossils
Strike 70°
dip N. 40° E

alternating white bands ½ to ¼ feet thick - main bands. The bands lying in 40 to 100 three

(See back of Pg. 2)



the quartzites, sandstones occur as ~~~~ thick bedded flags & shaly beds - rippled marked & cracked & mean the tube annelid trails of several kinds. Broad

Navan -

annulated Beaded -

R.S 4

Apoint of contact with the Etchemin in the Stake of the upper bed of reddish rock is N. 50° E. dip 70° S.E.

Immediately on this bed of rock there is a thin layer of conglomeritic limestone - It is rarely more than six inches thick. Small pebbles of the subjacent Randam terrane, small quartz grains & pebbles are cemented together by the calcareous matrix. Often there is scarcely a trace of the limestone -

Section of Randam terrane - (J. P. Hamlin measured it carefully)

R.S 5

Signal Hill - Conglomerate
Dip N. 68°. Str. S. 40° E.

Random Sample.

13½) 1a Quartzitic red - massive
bedded - reddish-grey - 31.

12½) Massive bedded white
quartzite - 63.

11½) Dark grey flaggy rds 55.

10
3. Massive & thin bedded
dk hard - grey rdy shales
& rds - 90.

9½ Massive bedded white
qtz & 10 ft.

8 ft. Brownish-red hard 21
rock —

7 6. Pale pinkish qtz 25

RS

6

67. ~~Slaty~~ greenish & bluish
~~overlaying~~ slaty beds - weathering
26
to into fine shales

5

8. Grey sandstone 16.

9. Micaceous grey & greenish
flaggy & shaly beds 68.
Arenaceous
See collection -

10. Hard grey sandstone
beds 5½

2 11. Light greyish-green
flaggy beds 3

Pale
1 12. Reddish grey ~~&~~ 1.6
4150

Echinocrinus
With fossils
Coleoides, at base

R.S. 7.

Etchemian (Lower Cambrian)

1) Calcareous -

a. Conglt - made up of fragments of Randam Jonathan Jasper - Calcaloles - 6"

b. Reddish purple ~~arenaceous~~ slate sandstone, called by Coone graded grayish purple 2"6" pd 6" Chuck. 3. 0

c. Pinkish limestone like E. with Calcareous ~~Cement~~ - 6"

Fragments such suggests Archaeopteris -

d. Reddish purple angl - slate 10ft -

e. Purple & pink hard, irregular arenaceous lm 1:6

Contains many Calcareous

R.S. 8

† a small shell?
~ ~ Sections of shell

J. Green and ~~Angel = Slate~~
~~followed by~~

f. Reddish-purple
argl slates in
broad bands
At 140 feet modu-
lar limestone
offeors † at 170 feet
a band of lm.
b^m thick with
Calcarides. Above
two other layers
of lm - with shale
between them. ft.

a change of dip & overturn occurs here which breaks the section & cuts out probably 100 feet or more.

12

14

98

R.S.

Green angl. sl 42

Reddish-purple sl 98

Greenish angl-
shale 84

Limestone with
Calcarder. Fry. fossils
etc- 6/ft

This (i) is overlain by
two or three hundred
feet of reddish-purple
& green slates - cleaned
so as to make a good
roofing slate at Bryant's
quarries.

R.S. 10

Summary of Randan terrace.-

A series of quartzite-sandstones, & pebbly & shaly sandstones. Total thickness as measured by Mr. J.P. Hawley along the shore of Randan Sand from Hickman Harbor point 2 as-ward - 415. ft.

Life traces - annelid trails and an annulated trail that may have been made by a gasteropod.

Lee Beale's Farm at Hearts Killing M.

R.S. 11

Summary of Etchemian
Lower Cambrian terrane
as exposed on Smith
& Randan Islands -

Rests conformably on
Randan terrane as far
as dip & strike of beds
indicate, but a fine
conglomerate indicates
a break by erosion,
& a slight degree.

1. Green & purple shales. 340

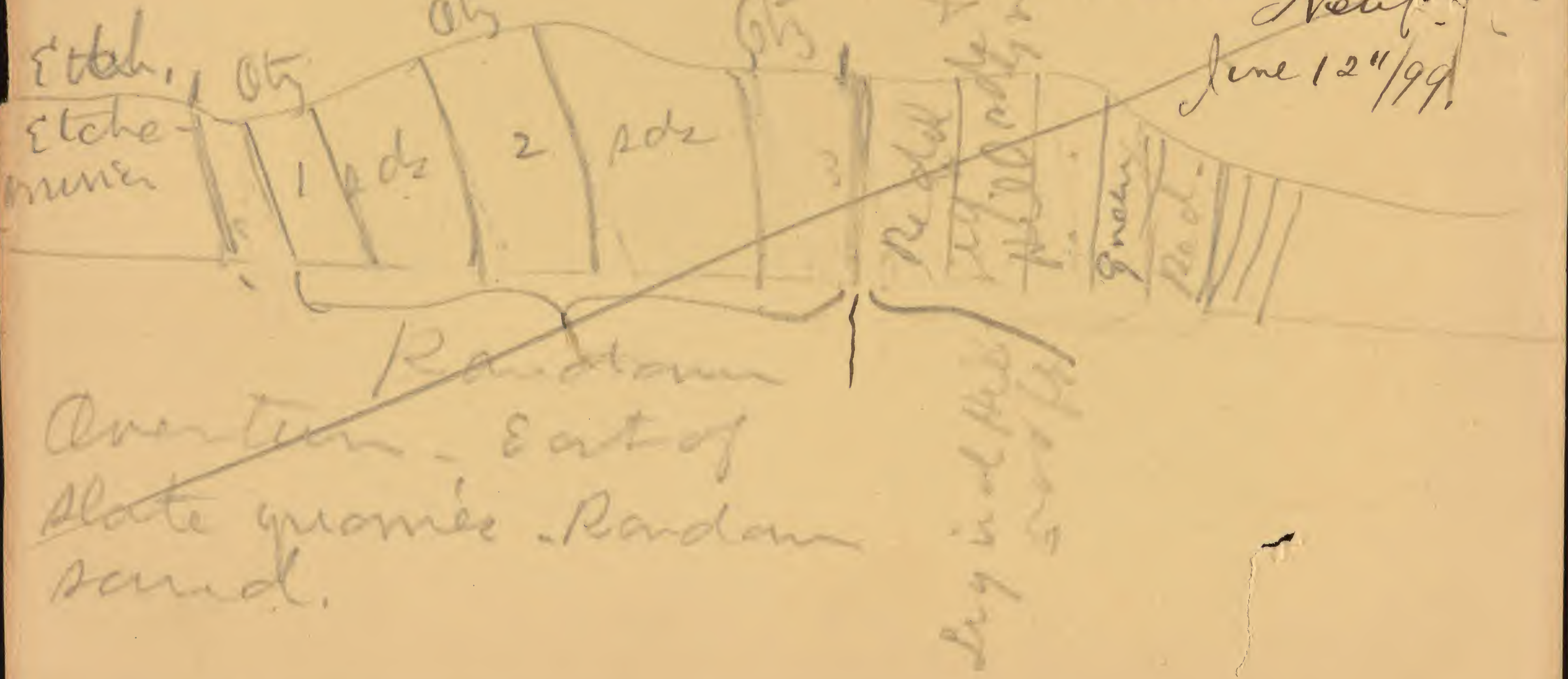
2. Limestone bands . 54. -

3. Lower reddish-purple
& green slates up to 515
Hyalithes limestone 415 ~~775~~ -

~~807~~

811 - 910.

Section of Avalon rocks
East of the Etcheminian - East of Hickmans Harbour Newf.
June 12th/99.


Etch.
Etche-
minian
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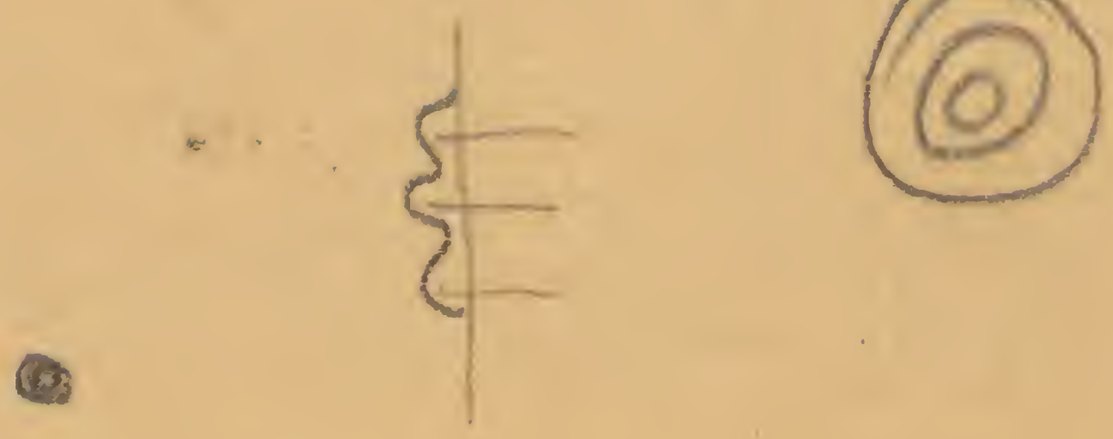
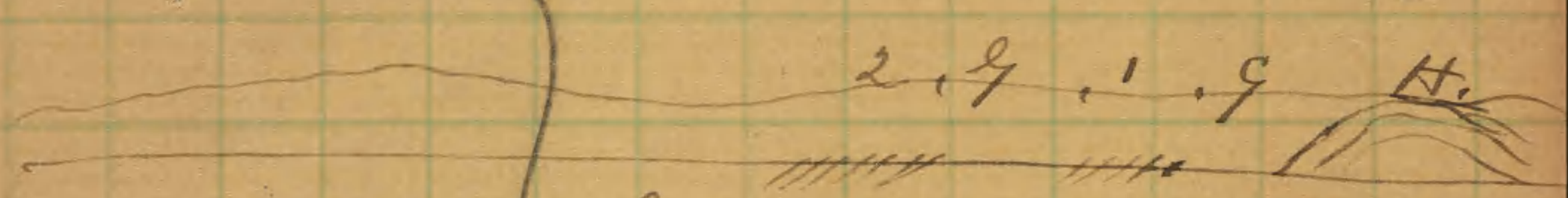


Section of the Portadown Anticline, June 12/99.
Amalgamated Brass Co's Quarry.

June 4—7—99

Section on North side South bound of Portadown



~~ft~~ = ~~Hornan~~ Amalax,

Gap. concealed (See Portadown Road section)

1. = Sandy shales with bed of quartzitic, grey sandstone

a = shales with sdy. ly. 5' 0" ft

b = Gs - sd, (20' 24. 22. 5' 4"

c. = sdy shales passing upwards into greenish argl shales. Calcareous nodules & layers occur throughout

sd — at 33. feet ~~33~~.

a thin layer of intraformational congl — occurs. 5/-

106—4.

Smith Rd Section 2

Filled in June

9. Gap - Concealed 11" on Roadcut Second section

2. a Red to
Purple slate with layers
of greenish & pink lime-
stone nodules, & layers of
nodular lm.
at 125, a layer of
lm, 12" thick occurs. ~~185~~ 185

2 b. Green shales must
same purple alter-
beg did - also a few
thin beds of nodular
lim. Ammonoid fossil
abundant 30-6

2 c. Shale much like
those of 2a
at 70 feet a thick
bed of irregular
nodular lm
occurs. 20" Pink,
purplish & green.

~~24~~

120

16

~~Sandstone~~ Arg. & fine nodular shaly shelly in nodular lam. layers 20 m thick. 10 m green below. 12 m pink & reddish purple at one. 136

d) Green shale in massive bands with numerous small purple, lam nodules, scattered on the lines of bedding planes. Hyolithes ~~Hyolithellus~~?

like shell at top soil. at. 35 - 42. feet up. at. 54. feet the lam nodules increase in number & size & form the great part of a layer two feet thick & above this the

Locality 216. Section

S.S. Rec. 47

The shales is
reddish purple & green
in irregular bands 2 ~ 6 ft

e. Massive bed nodular
lm. Three feet purple
thick mixed with purple
slate - 18 in pinkish
lm.
Fossils. Calceola typically 4 in 6"
~~Hyolithellus~~

f. Green shale 23 in

2d
g. Brick red nodular
limestone.
Lm ~ 1 ft
Shale, 3 in lm 2 ft
Lm ~ 2 ft
Fossils.
Hebetia sella - Calceola
Hyolithes pinches -
coming
Scenella reticulata.
On upper layer
Olenellus (Owen)

Loc. 21.17. a

Lane Iana as ab
Manila Conception
Bay.

S.S. Sec. 5

2ft. Reddish-purple to brick red argillaceous shale. 56ft

Fossils

Obolella —
Microdiscus +
Agraulas =
Ulrichias —

Sec. 21 ft.

Fossils occur not abundantly near base but are scattered here & there all the way thro' especially in a few thin bed of greenish shale.

2ft

Limestone - finish. Sm forming up into ~~ab~~ few inches of intermediate layers of finish layer mixed with fine sand & fragments of trilobite - etc + passing above into a

33

165.
20
190

135
68

250.
34
284

3c – to wharf.

S.S. Sec
Greenish
Blue
Trail

6 Lavender Lin ~~Sandstone~~ 16"

2 feet

~~Obolella Chromatica~~.

Agraulas ——

2 Fragments

Near base Obolella
chromatica.

ca 73 feet — noted
~~Obolella~~ —
Agraulas —
Obolella —

Reddish purple argil
shales - with greenish
shales à bands at
irregular intervals

2 ft.
810.

Summit of Etcheminian

(21 a)

Ash Bivalve
Lingula
Obolella
Agraulas
Trilobite
Fragments

on Red Rock Cove near
Holyrood Point Carefitai.
Bory Clerellus extends
thro' over 200 feet of
red & green shales &
limestones *

3) S.S. for a Middle Cambrian,

~~2~~. Nodular limestone
a finish layer 4" thick
at base contains numer-
ous fragments of trilobite
& planting of shale -
Finish lm. 4"
Shale (Brecciated -) 3"
Limestone. 2"
Shale - 2"
Massive bed of
dark nodular lm. 25" . 3 ft
At the point of exposure
the limestone is faulted
down 15 feet to the west.

2b. Reddish purple argil
shale with greenish
bands. 135 feet
a "trap" dyke cuts
thro a ~~feet~~ ~~feet~~ feet
west of the outcrop
of 2a. It looks like
a massive rd - on
its face - 2 ft & 3 ft 4"

- 23 -

$$\frac{\frac{5}{115}}{\frac{16}{4}}$$

135

S. S. Sec

Thick + vertical -

8

3c

2ft Pinish nodular limestone in several layers imbedded in reddish shale - 2ft

Another layer of pinkish lm - occurs about 2 feet higher in the shale.

Fossils,

Paradoxides —

Pty

3d about 20 feet of reddish ~~yellow~~ angular shales with a ~~thin~~ bed of fossiliferous lm - occurs containing fragments of trilobites -

Loc. No. 119.

S. S. Sec.

above this the shales become darker passing into black and in places slightly arenaceous shales — a roll in the strata carries the section a long way, the

limestone band above noted appearing between the two last workings at Broad Cove. At 75 feet Paradoxides etc. is abundant but not well preserved, at 110 feet the strata are concealed for a long distance.

/10.

S. S. Dec (10

Resumè of Smith Section.

~~Harrison~~

Concealed ——

No	1.			1	0	6	
	Concealed —						
	Lower Campian						
No	2.a			1	8	5	
	2b				3	0 6	
	2c			1	3	6	
	2d				6	2	
	2e					4 6	441
	2f				2	3	
	2g				2	7	
	2h				5	6	
	2i					2	
	2L			2	8	4	810
Middle Campian	3a					3	
	3c			1	3	5	
	3e					2	
	3a			1	9	0	330

Albany Limestone of Broad Cove

Cambrian section
Smith's Sound, Trinity bay Newfoundland

June 1st

Sailed from Clarenville up Random Sound & around the head of Random island into Smith sound. Light winds & calms. Left vessel & hauled on shore- Landed a little east of Smith point on North shore- Found fossils in a pinkish limestone just west of a "trap" dyke. (Paradoxides) ——

S.S.

Contd. Sec. 2

The fossils found are fragmentary - Noted Paradoxides of the Amorphaleus type. Also a small Agnostus (Linguella)

---

all a lower horizon each of the points - a large Olenellus - Hyolithellus - like tube occurs in the pink & greenish limestones. No surface ornamentation.

June 2d

In broad echo the reddish & greenish shales are overlain by dark shales - Noted Paradoxides - Ptychagnosta (Linguella) ferruginea, Acrotele minuta?

attempted to find contact of "Hurmon" & the red & green shales - but failed on both sides of the wood. On the south side many boulders & greenish & purplish conglomerate occur on the shore & up a brook on to line of contact. These indicate a massive bedded basal conglomerate followed by / or interbedded with a coarse sandstone.

A storm kept us off the north shore so we examined the north shore of Kandon island. Found soft fissile shales with thin beds of calcareous sandstone & small Obolus (Lingulella

S.S.

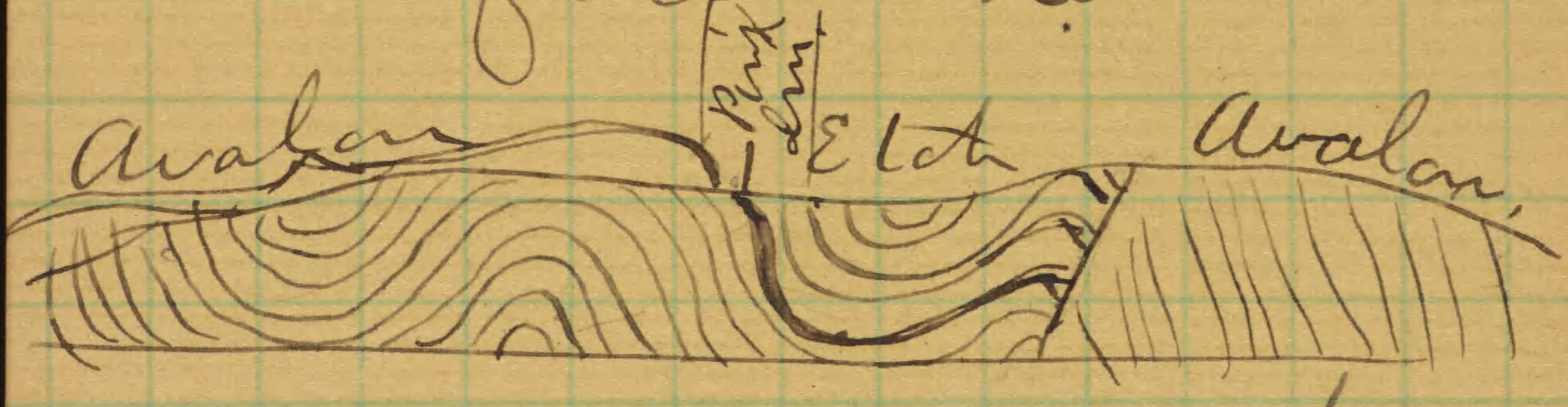
100 - 4 about 100 feet higher than found Alevs in dred argillaceous shale. Rain June 2nd. Rain.

June 4th 7.

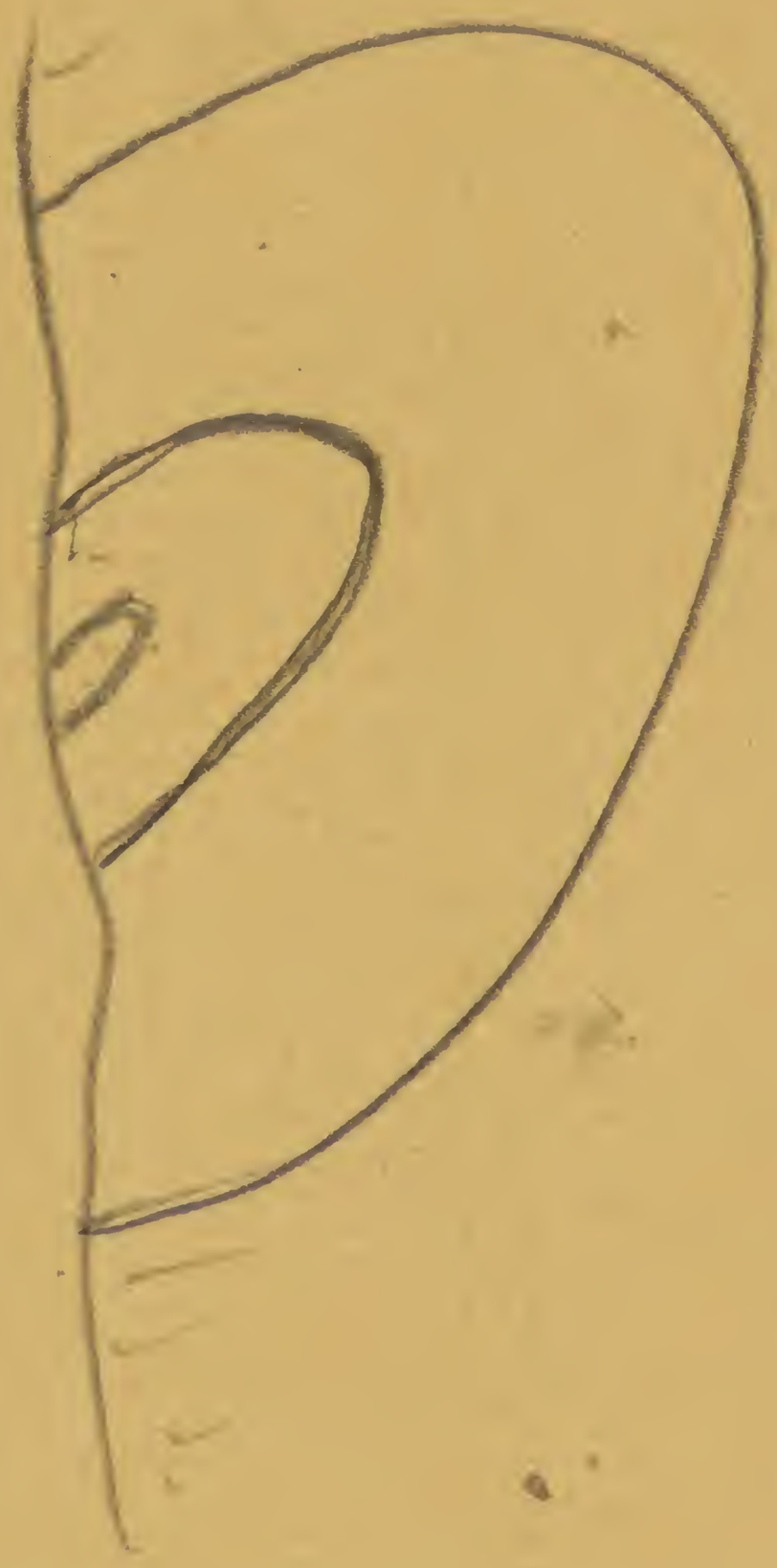
See Sect'n

June 8th

Examined sections of slate quarries east of Filton Head. Found the slate to be the base of the "Etchemian"



on the opposite shore at Britania Cove found Abellus + Micrabaccus at base of



S.S. 5

feet above a massive limestone corresponding to the Smith Park limestone -

Section

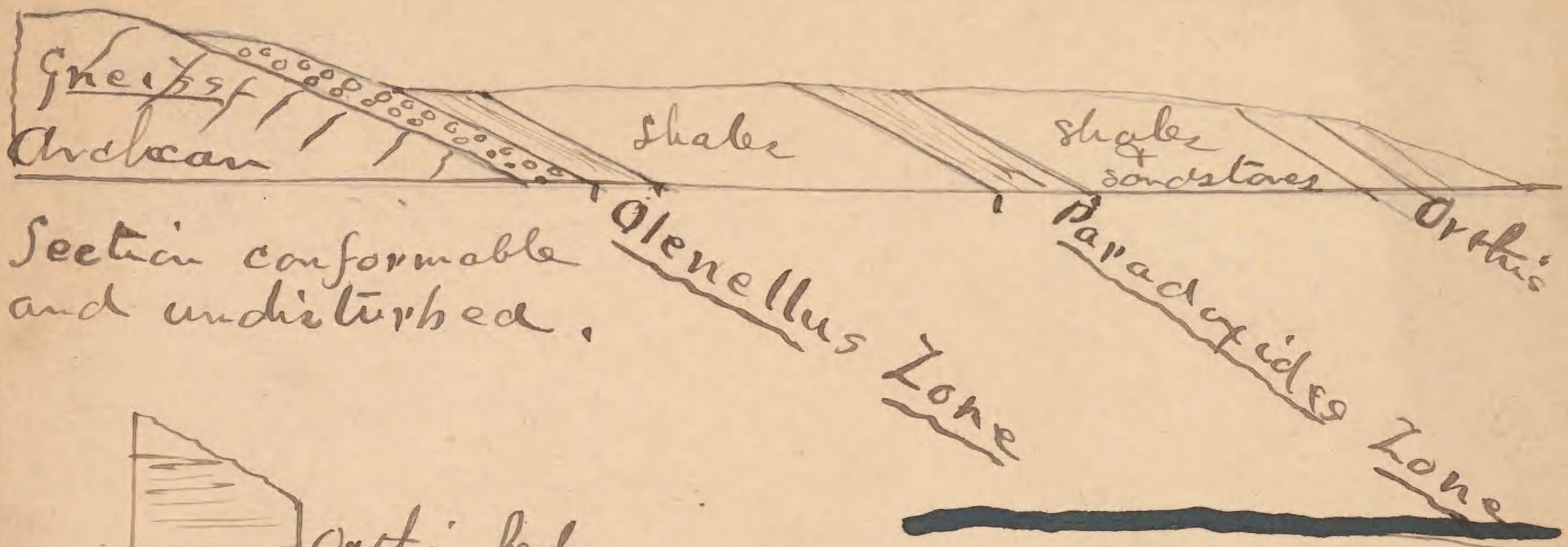
The Plate Quarries section fills in a part of the gap in the section at Smith Park - Beside the simple type given above there is below a thin bed of limestone carrying Calceolandra ~~Napolitana~~ - Beneath this a series of sandstones - First a number of massive beds and then flaggy sets & shales These extend downward probably 750 feet to red sandstones that appear to be

according to Hm. Hawley
the Signal Hill Rd
of the Avalon series.

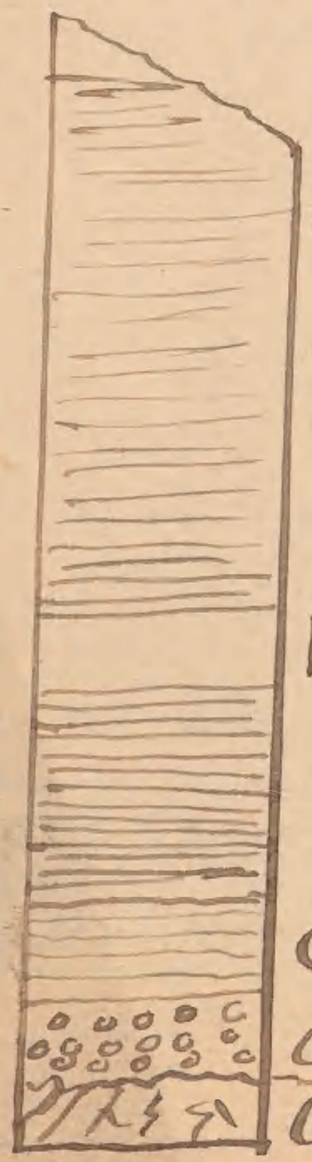
Note

The section taken June
11"/99 fills in the gap
& shows the relations
of the Signal Hill rocks
to the superjacent Random
terrane & the Avalon
series & alone the base
of the Cambrian.

Cambrian Section - Newfoundland
manuels Brook.



Section conformable and undisturbed.



Orthis beds.

Paradoxides Zone

Olenellus Zone

Conglomerate

Archean

Vertical Section.

The Paradoxides Zone is 300 feet above the Olenellus Zone.

Section measured and sketched Aug. 9. 1888.

Chas D Walcott.

Aug 9/04

Camden.

S. Bruce Stark Esq.

This Action was Originally
and Publish'd in the
Geology of Kentucky
Report of 1870 —
Revised in the
Museum Notes — for
Fossils — Owing to the Plat
being Enlarged
to the Carolina Geological
Survey Condition
of the Fossils, it was
with great difficulty
that they were Obtained
Few of the Specimens
of Univalves is not the
Actual Which Produced
the Plate Cleavage in
the Plate Also Fractured
a Shell structure to the

limestone at high angles to the diagonal bedding. The limestones in the limestone appear to have been separated and deposited on the surfaces of the shaley layers produced by the secondary cleavage.

Fossils.

In the lower part of (9) of the section I found a shoulder clasp after the type that is in the Cross Longitudinal section to be identical with the shell occurring in the Cambrian beds discovered by Prof. Hall near North Attleborough Mass.

At the summit of (9)

Found fragments of a species of Olenellus, a small Microdiscus like M. Lobatus - of the Lower beds.

In the beds (i) fragments of trilobites were seen.

In the upper portion of Quartzites numerous specimens of Agraulos and Olenellus were collected.

The finding of these fossils at this horizon correlates the Quartzites with those of Top Sail Head, and proves that the Lower Olenellus zone in Newfoundland extends through the Paradoxides horizon as in Norway, Sweden, and Russia. This disproves the views of

Boggs that the Georgia
or Flannelled fauna of
N. America is Collected
and Examined by the Woodside
Entomologist.

Mr. Frank Reed.
Fellyford,

Canhèàn June. 1899

Chapel Arm,

Trinity Bay,

Nfld.

Red & Green shales

Lower portion of Middle

Cambrian occur on the

point N.W. side of

Arm + the Paradoxides

dark beds occur on

both sides of the

Arm but are badly

disturbed & broken by

broad dykes of "trap".

Found numerous

fossils in the Paradoxi-

des davisi Bands

& a few above &

below collections from

localities 221. 221a-b+c

on Spread Eagle

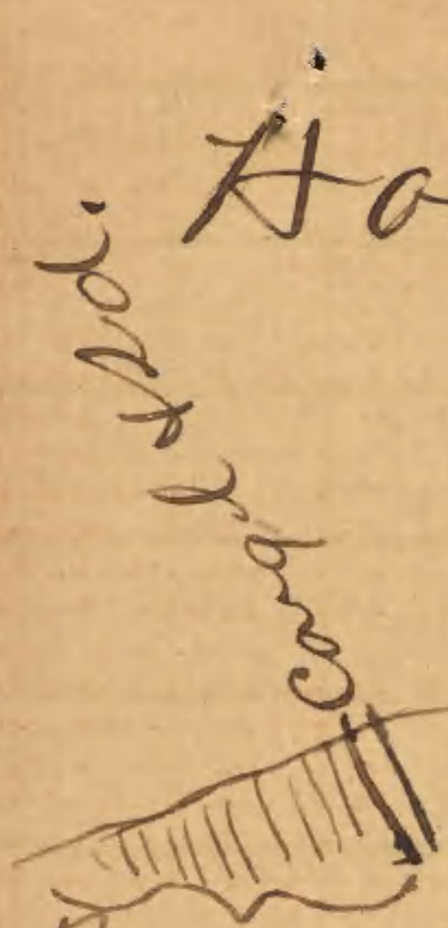
H.P.

June 15/99.

Haven Cambrai

Etchemin tenure

Harbor of Heart Height.
Trinity Bay
Newf.



Base Silicious & sandy shales
& flags of the Random
tenane of the Avalonnes.
Strike N. 30° E. dip 75°
N.W.

1st massive bedded dark
quartzite
grey sandstones with shaly ends
of same shaly rock
700 feet.

1st Siliceous & sandy shales
& flags - ab 166. feet

$\frac{36}{252}$.

H.D. 2

Massive layers of fine grey sd. often in thick & continue to the 225 ft.

Traces of Annelid trails occur on the surface of the shaly beds.

~~Cambrian~~

Dc

Massive bedded sd. & fine conglomerate in places. The last is seen 4 m' to the N.NE on the Heart Desire Harbour Point.

The base is taken at a Hoot bed of fine congl & Ld but there is such a gradual transition from the lower beds that no strict line of demarcation can be

H.P. 3

in this part of the section. The greenish shaly sandy patches are the same below the conglomerate as between its individual layers. At the top there is a ~~hard~~ layer 1/2 inches thick containing small pebbles & pebbles of the subjacent conglomerate these inches across. This is taken as the basal bed of the Cambrian.

45=

1a = 700.	Below the section there are several quartz veins at intervals for some distance.
1b = 225.	
1d = 45	
970.	

The above does not affect to reach down to the white quartzites of the Randsom series

H. P.
Section 4 Mon 1
Cambrian
Elsternwick formation

Col.

Conglomerate made up of bits of the Rondam Sds - cong & reddish sds - dark sdy shale - & pebbles etc. (3 to 8 cm)

~~2. Greenish sandy shale~~

Fossil near the irregular upper surface of the Rondam sds.

3 to 8 cm

Slightly calcareous in places & looks very much like the fossil bed of the Rondam Sand Lower Cambrian

The best section of this is to be seen on Hopeall Island at the entrance to Hopeall

An Spread Eagle Point
offsite Hildo the
local cmpd - is ~~two~~
from 24 to 30 inches in
thickness - Thin, irregular
layers of limestone in
the upper portion contain
great numbers of Coleoloxodes
& a small Oboella -
like shell -

H.D (5

c2 Greenish Ady shales
Sh. N. 5° E. 2½ 60° N.W
an 1/4 feet large oval
nodules, slightly cal-
careous throughout for 49
feet a thin band 1/4 to
1" of nodular limestone.
75 ~~95~~ feet.
all cuthy slaty
cleavage Sh. N. 20° E
dip 65° W.

c3 Reddish (brick red)
shales cleaved into
slates. With irregu-
larly arranged
bands of calcareous
nodules.
Calcalos abundant
~~with this~~ horizon also a
Hyalithes, little H. communis.
(a Thread radiate Pointed)

10 H.D. 6

C4. Gravish shales
and - cleaned as in
C2. Many flanges
calcareous nodules
than in C3 3 H.D.
the nodules almost
form layers in places.
Dated Calcarides in
lower portion with
pinkish calcareous
nodules.

1 a/

C5 - Massive bedded
pinkish calcareous
limestone with
many nodular irregular
stained small cance-
ous(?) suggesting
Strawberry.
SW. N. 55° E. dip
40° N.W
Fragments of fossils
all the way thro' like
Calcarides, tralilites

1 a/ Abundant Hearts
Angelus(?) Crinoid(?)

25
175

7

21

A. D. (7)

C. 6. Reddish shale with bands of pink lm. 70ft. (79 ft.

Fossils

At 2 feet of a band of limestone 6in thick gave numerous fossils. Recognised

Cleveleys

Crleodes

Agraulas — 175.

c7 Alternating bands of greenish & reddish shale — (slate) with lm. nodules) below lm. dun. —

c8

Greenish sandy shales — cleaved 127.

c9 (1) Pink lm. 1ft 6in

(2) Reddish sh 4ft.

(3) Pink lm. nodules 2.

N. D. (&) Mated Calcaleus sin this
bed Thick of trilobites

C1°. Greenish shale. 42

C11. Reddish " 21

C12 Pink limestone 12" ±
St. N. 55° E. dip 60°
N. W.
One hundred yards
south they thicken
up to five feet
with d well marked
conglomerate at the
bottom of rolled
limestone pebbles of
Both pebbles & matrix
are filled with
fragments of trilobites &
Hyolithes. 4±

C12 is probably the base
of the Middle Cambrian
Bedrock not exposed at this

H.P.

Summary of Lower Carboniferous of Heights of Abergele Horton.

C1	~~1~~	
C2	75.	
C3	41	
C4	38 — 155	
C5	28 — 28	Limestone
C6	~~39~~ 89 79	
C7	~~145~~ 175 145	
C8	~~127~~ 147 127	
C9	7 — 6	
C10	42	
C11	21 — ~~488~~ 351	
Total —	~~664~~ 534	
	~~664~~	

R.R. 4 June 21/99

Haven Cauhuan.

Chapple Cove / Halyrood
Point. Red Rock Point Conception Bay. Newf.

Lt. N. 50° W. Alt. 45. S.E.

Base -

Quartzitic rd - resting
on altered "trap" above
shaly rds of the Random
formation.

1) Quartzitic, greenish rd. 6.

2) Reddish purple shale
with nodules of greenish
& pinkish lm.

Lt. N. 50° W. Alt. 45° S.E.

- 32

Trilobites are represented
by a many fragments with
Protypus-like head
both in shale & nodules.
Also Obolella atlantica ?.
Obolellus Broggeri,

156
34

R.R

3. Pink & reddish purple colored nodular lm - in two beds 12" & 24" 3.
Fragments of trilobites abundant.

4. Green argillaceous shale with bands of nodular lm, in the upper 20 feet. 15-6.

5. Reddish-purple shale with numerous layers of nodular limestone. Some of them 18" thick. 28-

Above removed by erosion,

Obolellus taggerti.
Agnostus -

Cambrian June 199

Manuels river section-
Restudy of the section
measured in 1888.
From bottom up -

1. Massive bedded coarse
siliceous conglomerate
with boulders of the
Algonkian rocks &
probably pre-Algon-
kian rocks - 21 - N. 70° W.
Dip 12. N.
135

This conglomerate is
local - At Red Rock
Point near Haley road
Point ten miles to the
S.W the Cambrian
reddish - purple shales
rests on 15 feet of sa-
ndstone resting on a bed
of "trap" between it &
the sandstones of the
Random formation

8

Mr. Rec (2)

of the Avalon series of
Algonkian formations.
At Manuels falls the
conglomerate rests on
a massive, coarse
gneiss that appears
to be intrusive in
the Avalon series and
of Laurentian age as
stated by Dr Alexander
Murray -

± map of the Peninsula
of Avalon, 1891.

2. Reddish purple (with bands of green) shales with layers of limestone at irregular intervals in the upper portion - that decomposes into Fossils - Obolellus Groomi - Agnostus - 45 ft

In the interbedded limestone the fauna is much larger & includes

30.

M. R. Rec. 3

Alexellus fraggeri -
Agraulos -
Atolella atlantica -
Staporgallina remato -
Stenatheca reticulata
" -
Hy - princeps.
" - communis -
Caleorides -
Helenia bella -
etc.

The tank bank of Inv is 18m thick +
in two layers ! Contains Alexellus.
only

3. Green shale with
limestone nodules - 3*.
Discoidi -
Alexellus fraggeri.

3* - Pink & Yellowish
earthy & arenaceous
Ostracoderm shields
a Polypid Redlichia
rotten rock 3 x

M. R. Rec. (4

3. Ferruginous semi-conglomeritic carbylimestone with nodules of red hematite in upper portion. In places it is a solid layer & in others breaks up into two or three layers. 1'-6"
Fossils - In the matrix nated bits of Abrellus. & Agraulos - This bear occupies the stratigraphic position of the band of lm S mesh of Monmouth, Ky station that contains Salenopleura hartleyi & S. konecyi,

No 3. is taken on the summit of the Lenoir Cambrian. No traces of Abrellus have been seen above it. I r

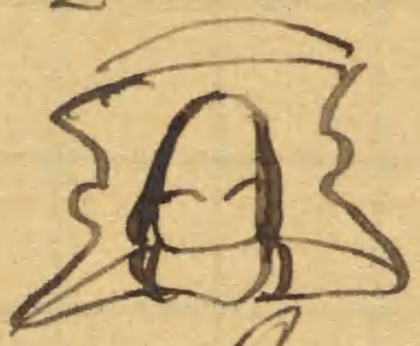
character it agrees
with the coal-bun
taken as the summit
of the Lower Cañon
(Echemin) of the Smith
Bend section —

4. Green argillaceous
shales in massive
bands forming a high
cliff on the west side
of the river. Ah 25-
30 feet from the base a
band of shale two feet
thick contains three
layers of Manganese
4. 2. & 4 inches thick)
interbedded with a
few thin reddish
colored layers of argil
shale. 170.

Fossils — None
seen.

M. R. Rec. (6)

5. Impure, earthy
limestone
~~Nuped~~ interbedded with green
shale ~~in~~ two layers 1' 4"
in regular layers 3" to 10" -
Fossils. Sh - 10, Lm 3 to 10" 6 to 20"
Paradoxides -
Ptychagnostus -



This lm. is the base of
the great Paradoxides zone
& corresponds in
position to a similar
lm - in the Mettle
Sand Section
In the shale between
the two layers of lm -
nated
Conocoryphe
Ptychagnostus
"
"
Paradoxides ——

227 a

66 — 105 = 120.

140 + 20 = 160.

235 + 30 = 265

54 . 67

310 , 360.

M.R. Sec (7.)
Zone of this section -

(6)
c. Green argl-shale
with many fossils.
It is devided by the
contained fauna
into several sub-
zones.
a) In the shales above
~~the base~~ fragments of
Paradoxides - Ptychaspis
are abundant - At
10 feet up - Acrotheles
Matthewi & Obolella
(Lingulella)
(227 b) ~~Ferruginous~~ appear
in numbers.
B) At 17 feet up Zone of
(227 c) Micradiscus sagittonis
begins
At 32 feet limestone
(228 b) bottles contain Leiostegium
in great abundance

66 feet from 5. to
lm - of great Paradox
idx Laisd -

~~66~~. 55.

d. Above this the same changes but little up to 50–58 feet where Karlia ménar & associated fossils occur. (see large collection of 1888 for this horizon.) Above rise the heaviest layer carrying in quantity there is a thick ~~band~~ layer of calcareous conglomerying from 2 to 6 inches. It has many dark concretions - also pebbles of reddish rock - This is taken as the base of the Upper Cambrian. One species of Agnostus & O (Linguella) ferruginous, pass up.

e) Paradoxides davisi limestone & shale 6 feet.

Total of 6. 66 feet.

7. Friable dark ferruginous shales - 62 feet thin bedded dark greyish

68.
330.
44
375

2 8
47.
64 Or this?

140
54
276
238
308

26
130
16
146

270.
36
0
140
20
160.

54.
94.
470
60
530.

105.

270

0 291.
66.
357.

324.
4
360.

M. R. Sec. 9.

appear at irregular
intervals in the shales
& the latter became
more arenaceous, to.
an ~~6 feet~~ 1-12 feet
of rated bits of Agnostus
Olenus & small
Asaphoids - also
O. Stinqubella) fenuigrens.
There fossils were traced
thro' 39 feet; ~~of the~~ They
may go higher as the
section is covered above
for some distance from
exposures on the eastern
side of the river the
character of the strata
continues about the
same - Alternating bands
of sandy friable shales -
dark argil- shales
& thin layers of steel
gray sandstone

Anacrusis etc. - Olenus - On east side

23
15
15
150

23
15
1
130.

421
66
487

421
30
390

290.
530.
43

43
40.

M. R. Sec. 19.

No 7. may be denoded
into,

a. Shales with traces
of O. (Linguella) ferruginea.
Sandstone — 112,

b. Olive beds — 39.

c. Non-fossiliferous
or fan or knurr. beds
& shales. 140.

d. Orthis?? beds. 175.

From the character of the
debris of the cliffs it is
probable that the sds
& shales extend to the
shore of the bay which
would give about 200
more thickness.

M. R. Rec. 10.

The beds of No 7. were largely concealed when I measured the section in 1888. Cutting of trees & clearing of land above caused land slips that exposed the rock.

M. K. Lee . 12.

Lemuel Lower Canada.

1	3 3		22
2	4 5	60 —	
Middle Can.			
4	— 170.		
5	— 1 —		
6	— 66	237	
Upper Can.			
7. a	112,		
b	39		
c	140		
d?	130. 421.		
Cancelled.	200		926.

Money order

Mamet Brickleaf

~~Light~~ Layer Argentite
Grains with massive
very fine-
Apparent Dip 5° N.
St. N. 60° West.

1. Carbonate-
Inclusive Layers &
large Nodules of fine
grain Layers &
small Pebbles of same
St. N. 80° E. 35 feet
Dip 12° N.

2. Greenish argil-shales
Layers conformably with
the above 40 feet

$$\frac{2\ 1\ 8}{2}$$

$$8\ 6.1$$

$$\frac{\cancel{7}\ \cancel{7}\ 0}{}$$

$$\frac{\cancel{6}}{}$$

$$3\ 3$$

4. Reddish argillaceous shale about 4 feet

5. Calcareous sandstone with pinkish to 2 feet
fossils see note

6 Greenish argillaceous with occasional layers of brown, ferruginous sandy fibrils. Fragments of trilobites at 218 feet. Layer of pinkish to with fragments of trilobites at 270 feet. Light gray to Paradoxides buff shale at 280 feet the green shales

336
28

52
5
258
298

362
295
400
1052

295

Grass in the Black
Slate-black shale,
Stat amin 9 ft in, 280,
Log 12 ft in,

7, Dark argl. shale-
with a few thin
calcareous layers
of the Paradoxides
gracilis zone at top. Fish
240 feet in the strata
carrying Entomostraca
offers -
Fragments

Layers of this shaly
ogl appear from
thick bands alternat-
ing with shale

295.

$$
\begin{array}{r}
47 \\
\hline
29 \\
20 \\
\hline
350 \\
43 \\
\hline
393 \\
43 \\
215 \\
31 \\
\hline
250
\end{array}
$$

8. alternate layers of
shale & thin layers of
sand & argl. shale,
with the more
abundant in the
lower & the thicker
& 250 feet where
calcareous more
common in the
shale and thin
layers of sand
are thicker
& 150 feet
where the reverse
exists. 400.

Strike N. 80° E.,
dip 12°
at 250 feet the dip
has increased to 16°
& about 300 to 18°
20° S., about E & W.